

**NORTH CAROLINA  
DIVISION OF AIR QUALITY**  
Application Review

**Region:** Winston-Salem Regional Office  
**County:** Guilford  
**NC Facility ID:** 4100977  
**Inspector's Name:** Robert Barker  
**Date of Last Inspection:** 05/02/2019  
**Compliance Code:** 5 / In Physical Compliance

**Issue Date:** xx

<p style="text-align: center;"><b>Facility Data</b></p> <p><b>Applicant (Facility's Name):</b> City of High Point - Eastside Wastewater Treatment Plant</p> <p><b>Facility Address:</b>  City of High Point - Eastside Wastewater Treatment Plant  5898 Riverdale Drive  Jamestown, NC 27282</p> <p><b>SIC:</b> 4952 / Sewerage Systems  <b>NAICS:</b> 22132 / Sewage Treatment Facilities</p> <p><b>Facility Classification: Before:</b> Title V <b>After:</b> Title V  <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V</p>			<p style="text-align: center;"><b>Permit Applicability (this application only)</b></p> <p><b>SIP:</b> 02D .1204  <b>NSPS:</b> N/A  <b>NESHAP:</b> N/A  <b>PSD:</b> N/A  <b>PSD Avoidance:</b> N/A  <b>NC Toxics:</b> N/A  <b>112(r):</b> N/A  <b>Other:</b> 40 CFR 503 Subpart E</p>				
<b>Contact Data</b>			<b>Application Data</b>				
<p style="text-align: center;"><b>Facility Contact</b></p> <p>John Thomas  Residuals Mgmt.  Superintendent  (336) 822-4740  P. O. Box 230  High Point, NC 27261</p>	<p style="text-align: center;"><b>Authorized Contact</b></p> <p>Terry Houk  Director of Public  Services  (336) 883-3215  P. O. Box 230  High Point, NC 27261</p>	<p style="text-align: center;"><b>Technical Contact</b></p> <p>John Thomas  Residuals Mgmt.  Superintendent  (336) 822-4740  P. O. Box 230  High Point, NC 27261</p>	<p><b>Application Number:</b> 4100977.19A  <b>Date Received:</b> 01/29/2019  <b>Application Type:</b> Modification  <b>Application Schedule:</b> TV-Significant  <b>Existing Permit Data</b>  <b>Existing Permit Number:</b> 08074/T13  <b>Existing Permit Issue Date:</b> 7/20/2020  <b>Existing Permit Expiration Date:</b> 11/30/2021</p>				
<b>Total Actual emissions in TONS/YEAR:</b>							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2018	0.1600	4.10	0.1300	1.06	0.1200	0.0020	0.0009 [Benzene]
2017	0.0200	6.55	0.1800	1.63	0.1900	0.0030	0.0015 [Benzene]
2016	---	3.47	0.1000	0.9200	0.1100	0.0017	0.0008 [Benzene]
2015	0.4400	6.09	0.1700	2.11	0.2000	0.4932	0.3040 [Dichlorobenzene(p), 1,4-]
<p><b>Review Engineer:</b> Rahul Thaker</p> <p><b>Review Engineer's Signature:</b> _____ <b>Date:</b> July 21, 2020</p>					<p style="text-align: center;"><b>Comments / Recommendations:</b></p> <p><b>Issue</b> 08074/T14  <b>Permit Issue Date:</b> xx  <b>Permit Expiration Date:</b> 11/30/2021</p>		

**1. Purpose of Application**

City of High Point - Eastside Wastewater Treatment Plant (“Eastside WWTP”), Jamestown, Guilford County, North Carolina has submitted a permit application for revising the maximum average daily concentration limits (mg/kg) for lead (Pb), arsenic (Ar), cadmium (Cd), chromium (Cr), and nickel (Ni) in the sludge being fed to the existing sewage sludge incinerator (SSI, ID No. ES-01) in Section 2.1.A.4.b. of the current permit.

The DAQ has deemed the application “complete” for processing as of January 29, 2019. It will be processed pursuant to a one-step significant modification provision in accordance with 15A NCAC 02Q .0501(c)(1).

## 2. Facility Description

The facility is a wastewater treatment plant (publicly owned treatment works) with a design capacity of 26 million gallons per day. The unit operations include screening, grit removal, primary clarification, activated sludge process, secondary clarification, biological nutrient removal operations (nitrogen and phosphorous removal), effluent filtration, ultraviolet disinfection, post aeration and solids handling (dewatering and incineration), and odor control.

## 3. Application Chronology

1/29/19	DAQ received the application.
6/5/20	Raised questions and requested information on use (appropriateness) of previous control efficiencies in determining the revised maximum daily average concentrations of metals.
6/15/20	Received the requested information on control efficiencies.

## 4. Statement of Compliance

Robert Barker of Winston-Salem Regional Office inspected the facility on May 3, 2019. He concluded that “based on review of the records and visual observations, the facility appeared to be in compliance with Air Quality standards and regulations at the time of this inspection.”

## 5. Permit Modification/Changes

### 40 CFR 503 Subpart E “Incineration”

As stated in Section 1 above, the current permit in Section 2.1.A.4.b. includes the maximum average daily concentration limits (mg/kg) for lead (Pb), arsenic (Ar), cadmium (Cd), chromium (Cr), and nickel (Ni) in the sludge being fed to the existing fluidized bed sewage sludge incinerator (SSI or FBI). They are specified in Table 5-1 below:

Table 5-1: Current Limits (Based Upon 1998 Stack Test Event Data)

Pollutant	Average Daily Concentration mg/kg
Lead	26,821
Arsenic	3,265
Cadmium	4,548
Chromium	119,732
Nickel	1,277,458

These limits were established pursuant to 40 CFR 503 Subpart E “Incineration”. They were based upon a dispersion factor and control efficiencies among other factors, consistent with §503.43(c) and (d). The dispersion factor was determined in 2002 using the EPA’s Industrial Source Complex Short Term (ISCST) model, five years of meteorological data provided by the DAQ, stack parameters for the previously permitted venturi scrubber, one gram per second generic pollution emission rate, and an annual averaging period. The control efficiencies for the pollutants were determined through a performance test in May 1998.

In accordance with §503.43(e)(5), significant changes in geographic or physical characteristics at the incinerator site or in incinerator operating conditions require the owner/operator to conduct a new air dispersion modeling or

performance testing for determining a new dispersion factor or a new control efficiency, and calculate the revised limits for the above pollutants.

Separately, the DAQ has issued an Air Quality Permit No. 08074T12 (February 23, 2018) to replace the activated carbon adsorber (ID No. CD-03) with a sorbent polymer catalyst composite material adsorption unit (ID No. CD-04) for controlling mercury emissions from the FBI.

Thus, the DAQ believes that the installation of the sorbent polymer catalyst composite material adsorption unit affected the exhaust stack parameters associated with the FBI; thus, the dispersion factor has changed as well. Therefore, consistent with §503.43(e)(5), the Permittee is required and has conducted new modeling to determine a new dispersion factor and calculate the revised limits for concentrations of each of the affected metal in the sewage sludge.

Accordingly, the Permittee conducted a new modeling exercise using EPA's AERMOD model, five years of meteorological data (2013-2017), stack parameters for the sorbent polymer catalyst composite material adsorption unit, one gram per second generic pollution emission rate, and an annual averaging period. This new modeling established an annual average dispersion factor of 9.33  $\mu\text{g}/\text{m}^3$  per gm/sec.

The AQAB (Air Quality Analysis Branch) reviewed the new modeling and concluded on March 5, 2019 that "the modeling analysis was consistent with NC DAQ modeling guidelines and was applied appropriately to the calculation of revised maximum average daily concentration limits on metals" and "establishe[d] an annual-average dispersion factor of 9.33 micrograms per cubic meter per gram per second based on modeling assumptions and inputs discussed in this review report."

Using this new dispersion factor, the Permittee then calculated the revised limits (Table 5-2 below) for Pb, Ar, Cd, Cr, and Ni, in accordance with the equations specified in §503.43(c) and (d) as below:

#### **Pb**

$$C = [0.1 \times \text{NAAQS} \times 86,400] / [\text{DF} \times (1 - \text{CE}) \times \text{SF}]$$

Where,

C = Average daily concentration of lead in sewage sludge.

NAAQS = National Ambient Air Quality Standard for lead in micrograms per cubic meter.

DF = Dispersion factor in micrograms per cubic meter per gram per second.

CE = Sewage sludge incinerator control efficiency for lead in hundredths.

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

#### **Ar, Cd, Cr, and Ni**

$$C = [\text{RSC} \times 86,400] / [\text{DF} \times (1 - \text{CE}) \times \text{SF}]$$

Where:

C = Average daily concentration of arsenic, cadmium, chromium, or nickel in sewage sludge.

CE = Sewage sludge incinerator control efficiency for arsenic, cadmium, chromium, or nickel in hundredths.

DF = Dispersion factor in micrograms per cubic meter per gram per second.

RSC = Risk specific concentration for arsenic, cadmium, chromium, or nickel in micrograms per cubic meter.

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

Table 5-2: Applicant-Proposed Limits (Based Upon 1998 Stack Test Event Data)

Pollutant	NAAQS $\mu\text{g}/\text{m}^3$	RSC $\mu\text{g}/\text{m}^3$	DF $\mu\text{g}/\text{m}^3/\text{gm}/\text{sec}$	CE	SF metric ton/day	Average Daily Concentration mg/kg
Lead	0.15	N/A	9.33	99.63	32.66	1,150

Pollutant	NAAQS $\mu\text{g}/\text{m}^3$	RSC $\mu\text{g}/\text{m}^3$	DF $\mu\text{g}/\text{m}^3/\text{gm}/\text{sec}$	CE	SF metric ton/day	Average Daily Concentration mg/kg
Arsenic	N/A	0.023	9.33	91.12	32.66	73
Cadmium	N/A	0.057	9.33	91.64	32.66	193
Chromium	N/A	0.65	9.33	99.09	32.66	20,257
Nickel	N/A	2.0	9.33	97.79	32.66	25,665

It should be noted that the control efficiencies included in the above Table 5-2 for calculating the revised limits are determined through a stack test conducted in May 1998 when the previously permitted venturi scrubber was installed (presumed to be at the time of initial construction of SSI) and are the same efficiencies used in establishing the current limits in Table 5-1.

But a new wet scrubber was permitted (replacement scrubber of the scrubber permitted initially) and installed through the issuance of an air quality permit 08074R09 (March 31, 2015). So, it appears that the installed air pollution control technology for the existing sewage sludge incinerator has not substantially changed for controlling emissions of the metal pollutants.

In addition, the Permittee performed a stack test (December 12-13, 2018) when operating the new scrubber and new sorbent polymer catalyst composite material adsorber to demonstrate compliance with emissions standards for various pollutants including Pb, Ar, Cd, Cr, and Ni, pursuant to 40 CFR 62 Subpart LLL. This test was conducted at the required minimum 85 percent charge rate of the maximum charge capacity of the existing SSI. The test results were accepted by the DAQ Technical Services Section (Stationary Source Compliance Branch (SSCB), May 16, 2019).

Thus, the DAQ required the Permittee to justify the appropriateness of use of the existing control efficiencies (i.e., May 1998) to establish the revised limits, considering that more relevant and DAQ approved data for the recent timeframe are available (i.e., December 2018 stack test event).

It needs to be clarified that even more recent data than the 2018 stack test data are available through the performance of another stack test event on December 17-18, 2019. However, this stack test was conducted at 67 percent of the maximum charge rate (less than the required minimum 85 percent charge rate). The stack test results for this 2019 stack test event were also approved by the DAQ's SSCB on June 22, 2020.

Thus, the DAQ determined that it would be more appropriate to revise the metals concentrations based upon December 2018 stack test event (and not December 2019 stack test event).

Therefore, the applicant revised the metals' limits using the 2018 stack test event data. The following Table 5-3 includes the DAQ-approved limits for metals concentrations using these test results. The DAQ has evaluated all data and calculation steps and found the resulting metals concentrations values acceptable. Thus, the air permit will be revised accordingly.

Table 5-3: DAQ-Proposed Limits (Based Upon 2018 Stack Test Event Data)

Pollutant	NAAQS $\mu\text{g}/\text{m}^3$	RSC $\mu\text{g}/\text{m}^3$	DF $\mu\text{g}/\text{m}^3/\text{gm}/\text{sec}$	CE	SF metric ton/day	Average Daily Concentration mg/kg
Lead	0.15	N/A	9.33	99.93	32.66	6,077
Arsenic	N/A	0.023	9.33	98.74	32.66	518
Cadmium	N/A	0.057	9.33	99.55	32.66	3,592
Chromium	N/A	0.65	9.33	99.90	32.66	184,341
Nickel	N/A	2.0	9.33	99.45	32.66	103,128

15A NCAC 02D .1204 "Sewage Sludge Incineration Units"

Separately, the DAQ has recently incorporated in regulation 15A NCAC 02D .1204 the emission guideline (EG) requirements for existing sewage sludge incinerator units in 40 CFR 60 Subpart M. The revised 02D .1204 implementing this EG replaces the existing federal plan requirement in 40 CFR Subpart LLL, as included in Section 2.1.A.6. of the current permit. The following section includes the discussion on regulatory requirements in 02D .1204, especially with regard to the EG requirements. Thus, the revised permit will include in Section 2.1.A.4. all applicable requirements for the existing SSI in accordance with 02D .1204 and exclude the federal plan requirements in entirety in Section 2.1.A.6.

Per 02D .1204(b), when the provisions of this Rule and provisions of 15A NCAC 02D .0524, .1110, or .1111 or provisions of 40 CFR Part 61, Subpart C; 40 CFR Part 61, Subpart E; or 40 CFR Part 503, Subpart E, regulate the same pollutant, the provisions of the more restrictive standards established shall apply, notwithstanding provisions of 15A NCAC 02D .0524, .1110, or .1111 or provisions of 40 CFR Part 61, Subpart C; 40 CFR Part 61, Subpart E; or 40 CFR Part 503, Subpart E to the contrary.

#### Emissions Standards [02D .1204(e)]

- The Permittee shall meet the emission limits and standards specified below by March 21, 2016 (i.e., the final compliance date).

- Emissions of particulate matter from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 or 40 CFR 60.152, whichever is more restrictive, as below:

18 milligrams per dry standard cubic meter or 1.3 lbs per ton of dry sludge

- Fugitive emissions from a sewage sludge incineration unit ash handling process shall meet the requirements established in 40 CFR 60.5165 as below:

Visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) shall be no more than 5 percent of the hourly observation period.

All other visible emissions from a sewage sludge incineration unit shall comply with 15A NCAC 02D .0521. However, it should be noted that since the SSI is subject to NSPS Subpart O for PM standard (including 20 percent opacity) in Section 2.1.A.2.b., requirements in 02D .0521 cannot apply.

- Emissions of hydrogen chloride from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

0.51 parts per million by dry volume

- Emissions of carbon monoxide (CO) from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

64 parts per million by dry volume

- Emissions of dioxin and furan (total mass basis) from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

1.2 nanograms per dry standard cubic meter

- Emissions of dioxin and furan (toxic equivalency basis) from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165.

0.10 nanograms per dry standard cubic meter

- Emissions of mercury from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 and in 40 CFR 61.52(b) as referenced in 15A NCAC 02D .1110(a), (d), and (e), whichever is more restrictive.

0.037 milligrams per dry standard cubic meter or 3.2 kg (7.1 lb) of mercury per 24-hour period

- Emissions of nitrogen oxides from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

150 parts per million by dry volume

- Emissions of sulfur dioxide from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

15 parts per million by dry volume

- Emissions of cadmium from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

0.0016 milligrams per dry standard cubic meter

- Emissions of lead from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 60.5165 as below:

0.0074 milligrams per dry standard cubic meter

In addition, the daily concentration of lead in sewage sludge fed to a sewage sludge incinerator shall be less than the maximum limit established in 40 CFR 503.43(c) as below:

6,077 mg/kg

- Emissions of beryllium from a sewage sludge incineration unit shall meet the requirements established in 40 CFR 61.32(a) through (c) as referenced in 15A NCAC 02D .1110(a), (d), and (e).

10 grams (0.022 lb) of beryllium over a 24-hour period

- The average daily concentration of arsenic, cadmium, chromium, and nickel in sewage sludge fed to a sewage sludge incinerator shall be less than the maximum limits established for each in accordance with 40 CFR 503.43(d) as below:

518 mg/kg (arsenic)

3,592 mg/kg (cadmium)

184,341 mg/kg (chromium)

103,128 mg/kg (nickel)

- Emissions of toxic air pollutants from a sewage sludge incineration unit shall meet the requirements specified in 15A NCAC 02D .1100 in accordance with 15A NCAC 02Q .0700.

It should be noted that because the SSI is subject to Part 61 NESHAP (Subparts C and E); thus, this incinerator is not subject to the state air toxics program per 02Q .0702(a)(27)(A).

- The monthly average concentration for total hydrocarbons or carbon monoxide, as provided in 40 CFR 503.40(c), in the exit gas from a sewage sludge incinerator stack, corrected to zero percent moisture and seven percent oxygen as specified in 40 CFR 503.44, shall not exceed 100 parts per million on a volumetric basis using the continuous emission monitoring required in Paragraph (I) of this Rule.

#### Operating Limits [02D .1204(f)]

- The Permittee shall meet the operating limits and requirements specified in 40 CFR 60.5170 including Subparagraphs (a) through (d) and (h) according to the schedule specified in 40 CFR 60.5170(e). They are as follows:

The Permittee shall meet a site-specific operating limit for minimum operating temperature of the combustion chamber (or afterburner combustion chamber) of the SSI that he/she establishes through initial performance test in §60.5190.

The Permittee shall meet the site-specific operating limits for each operating parameter associated with each air pollution control device (i.e., existing wet scrubber) that he/she establishes through an initial performance test in §60.5190.

The Permittee shall meet the operating requirements in the site-specific fugitive emission monitoring plan, submitted as specified in §60.5200(d) to ensure that the ash handling system will meet the emission standard for fugitive emissions from ash handling.

For the sorbent polymer catalyst composite material adsorber (installed on existing SSI), the Permittee shall meet any site-specific operating limits or requirements that he/she establishes pursuant to §§60.5170(h) and 60.5175.

- The Permittee shall meet the operating limits and requirements specified in 40 CFR 60.5170 including Subparagraphs (a) through (d) by March 21, 2016.
- The Permittee shall monitor the feed rate and moisture content of the sewage sludge fed to the sewage sludge incinerator, as specified in 40 CFR 60.5170(f)(1) and (f)(2).
- For the operating requirements in 40 CFR 60.5170(a) through (d) and (h), the Permittee shall meet any new operating limits, re-established in accordance with 40 CFR 60.5210.

#### General [02D .1204(g)]

- Emission standards and operational limits established in 02D .1204(e) and (f) above shall apply at all times that sewage sludge is in the combustion chamber before the sewage sludge feed to the combustor is cut off for a period of time not less than the sewage sludge incineration residence time and during periods of malfunction as specified in 40 CFR 60.5180.

#### Initial Compliance [02D .1204(h)]

- The compliance with the emissions standards in 02D .1204(e) shall be demonstrated by using the procedures specified in 40 CFR 60.5185(a) through (e).

It is DAQ's understanding that using the December 2018 stack test, conducted previously to comply with the federal plan (Part 62 Subpart LLL), and associated results approved by DAQ, as discussed above, the Permittee may be able to satisfy the initial compliance requirements for various emissions standards to meet the state plan requirement in 02D .1204(h).

- The Permittee shall establish site-specific operating limits specified in 02D .1204(f) in accordance with the requirements specified 40 CFR 60.5190(a) through (e).

The DAQ has determined that the December 2018 stack test event complying with the then-applicable federal plan meets the state plan requirement for establishing the operating limits for wet scrubber and sewage sludge incinerator. They will be included in the permit as below:

Source or Control Device	Operating Parameter/Operating Requirement	Operating Limit
Sewage Sludge Incinerator (ID No. ES-01)	minimum combustion chamber operating temperature	1,294 °F
Wet Scrubber (ID No. CD-01)	minimum pressure drop across scrubber minimum scrubber liquid flow rate minimum scrubber liquid pH	39.1 inches of H <sub>2</sub> O 275 gallons per minute 2.84

The Permittee will be required to either confirm the above operating limits (and operating requirements in the site-specific fugitive emissions monitoring plan) or reestablish the operating limits (and operating requirements in the site-specific fugitive emissions monitoring plan) pursuant to §60.5210(d). In addition, the Permittee will be required to confirm the site-specific operating limits or requirements for the sorbent polymer catalyst adsorber, established per §§60.5170(h) and 60.5175. The Permittee also has an option to reestablish the operating limits or requirements for this control device as well.

Any confirmation or reestablishment of operating limits (and operating requirements in the site-specific fugitive emissions monitoring plan) may require a permit revision.

- The Permittee shall conduct the initial air pollution control device inspection specified 40 CFR 60.5220(c) by the date established in accordance with 40 CFR 60.5195(a). The Permittee shall complete all necessary repairs in accordance with 40 CFR 60.5195(b).
- The Permittee shall develop a site-specific monitoring plan for continuous monitoring, bag leak detection, ash handling systems, and an initial performance evaluation date, as applicable, in accordance with the requirements specified in 40 CFR 60.5200(a) and (d) through (h).

#### Continuous Compliance Requirements [02D .1204(i)]

- The Permittee shall demonstrate compliance with the emissions standards in 02D .1204(e) above as follows:
  - By demonstrating continuous compliance as specified in 40 CFR 60.5205(a) through (f).
  - By demonstrating continuous compliance with the operating limits as specified in 40 CFR 60.5210(a)(1) and (b) through (d).
  - By demonstrating continuous compliance with the total hydrocarbon concentration of the incinerator stack exit gas according to 40 CFR 503.45(a) unless the requirements for continuously monitoring carbon monoxide as provided in 40 CFR 503.40(c) are satisfied.
  - By demonstrating continuous compliance with the oxygen content of the incinerator stack exit gas as provided in 40 CFR 503.45(b).
  - By demonstrating continuous compliance with the moisture content of the incinerator stack exit gas as provided in 40 CFR 503.45(c).
  - By conducting an annual air pollution control device inspection as specified in 40 CFR 60.5215(a).
  - By making all necessary repairs within the time periods specified in 40 CFR 60.5215(b).
  - By monitoring the concentration of beryllium and mercury from the sewage sludge fed to the incinerator as frequently as specified in 40 CFR 503.46(a)(1).
  - By monitoring the concentrations of arsenic, cadmium, chromium, lead, and nickel in the sewage sludge fed to the incinerator as frequently as specified in 40 CFR 503.46(a)(2) and (3).

#### Performance Testing, Monitoring, and Calibration Requirements [02D .1204(j)]

- The Permittee shall demonstrate compliance with the emissions standards as specified above in 02D .1204(e) as follows:
  - By meeting the performance testing requirements specified in 40 CFR 60.5220(a)(1) through (11), 40 CFR 61.53(d) or 40 CFR 61.54, 40 CFR 503.43(e), and 40 CFR 61.33.

- By meeting the monitoring requirements specified in 40 CFR 60.5220(b)(1) through (7), 40 CFR 61.55, 40 CFR 503.55, 40 CFR 503.46; and 40 CFR 60.153.
- By performing the air pollution control device inspection requirements specified in 40 CFR 60.5220(c)(1) through (3).
- By meeting the bypass stack provisions specified in 40 CFR 60.5220(d).

#### Continuous Parameter Monitoring Systems [02D .1204(k)]

- The Permittee shall install, operate, calibrate, and maintain the continuous parameter monitoring systems to ensure compliance with the operational limits set forth in 02D .1204(f) above, as specified in 40 CFR 503.45, 40 CFR 60.5225 (a)(1), (2), and 40 CFR 60.153.

#### Recordkeeping [02D .1204(l)]

- The Permittee shall maintain on site in either paper copy or electronic format that can be printed upon request for a period of five years the following:
  - the calendar date of each record as specified in 40 CFR 60.5230(a).
  - increments of progress as specified in 40 CFR 60.5230(b).
  - operator training records as specified in 40 CFR 60.5230(c)(1) through (4).
  - air pollution control device inspections as specified in 40 CFR 60.5230(d).
  - performance test reports as specified in 40 CFR 60.5230(e)(1) through (4).
  - continuous monitoring data as specified in 40 CFR 60.5230(f)(1) through (3) and 40 CFR 60.153.
  - other records for continuous monitoring systems as specified in 40 CFR 60.5230(g)(1) through (3) and 40 CFR 60.153.
  - deviation reports as specified in 40 CFR 60.5230(h).
  - equipment specifications and operation and maintenance requirements as specified in 40 CFR 60.5230(i).
  - inspections, calibrations, and validation checks of monitoring devices as specified in 40 CFR 60.5230(j).
  - monitoring plan and performance evaluations for continuous monitoring systems as specified in 40 CFR 60.5230(k).
  - records indicating use of the bypass stack as specified in 40 CFR 60.5230(m).
  - malfunction occurrence records as specified in 40 CFR 60.5230(n).
  - records showing compliance with standards for the use or disposal of sewage sludge listed in 40 CFR 503.47(b) through (n).

#### Reporting [02D .1204(l)]

- The Permittee shall submit to the Director in the format specified in 40 CFR 60.5235(h)(1) and by due dates established in Table 6 of 40 CFR Part 60 Subpart M the following:
  - the initial compliance report as specified in 40 CFR 60.5235(b).
  - the annual compliance report as specified in 40 CFR 60.5235(c).
  - the deviation reports (deviations from emission limits, emission standards, or operating limits, as specified in 40 CFR 60.5235(d)(1)) when it is required by 40 CFR 60.5235(d).
  - the notification of qualified operator deviation and notification of status of qualified operator deviation as specified in 40 CFR 60.5235(e)(1).
  - the notification of resumed operation pursuant to 40 CFR 60.5155(b)(2)(i) following shutdown (due to qualified operator deviation) as specified in 40 CFR 60.5235(e)(2).
  - the notification of a force majeure as specified in 40 CFR 60.5235(f).
  - the notification of intent to start or stop use of a continuous monitoring system, notification of intent to conduct a performance test, and notification of intent to conduct a rescheduled performance test as specified in 40 CFR 60.5235(g).
  - the performance test relative accuracy audit data (test reference method) and performance test data in the manner specified in 40 CFR 60.5235(h)(2).
  - the semiannual reports as specified in 40 CFR 60.155.

#### Operator Training and Qualification [02D .1204(m)]

- A sewage sludge incineration unit subject to this Rule shall not be operated unless a fully trained and qualified sewage sludge incineration unit operator is at the facility or can be at the facility within one hour. The trained and qualified sewage sludge incineration unit operator may operate the sewage sludge incineration unit directly or be the direct supervisor of one or more other plant personnel who operate the unit. If all qualified sewage sludge incineration unit operators are temporarily not accessible, the procedures in 40 CFR 60.5155 shall apply.
- Operator training and qualification shall be obtained by completing the requirements specified in 40 CFR 60.5130(c).
- The Permittee shall complete an annual review or refresher course covering the five topics specified in 40 CFR 60.5145(a) through (e) to maintain an operator qualification.
- The owner or operator of a sewage sludge incineration unit subject to this Rule shall renew a lapsed operator qualification before he or she begins operation of the unit by one of the two methods specified in 40 CFR 60.5150(a) and (b).
- When a qualified operator of a sewage sludge incineration unit subject to this Rule is not at the facility and cannot be at the facility within one hour, the owner shall meet the criteria specified in 40 CFR 60.5155.
- The owner or operator of a sewage sludge incineration unit subject to this Rule shall maintain and review the operator training documentation as specified in 40 CFR 60.5160 (a) and (b).

#### Final compliance [02D .1204(n)]

- The Permittee shall achieve final compliance by the dates specified in 40 CFR 60.5035(a) or (b). The final compliance date is March 21, 2016.

## **6. NSPS, NESHAPS, PSD, Attainment Status, 112(r), CAM**

### NSPS

Not Applicable to the proposed changes.

### NESHAP

Not Applicable to the proposed changes.

### PSD

The County of Guilford is in attainment or unclassifiable for all promulgated National Ambient Air Quality standards (NAAQS) in accordance with §81.334. PSD program applies to major stationary sources and major modifications in this County.

The Eastside WWTP is an existing “minor” source for PSD as per the current permit. The facility operates under the PSD avoidance limit (less than 250 tons NO<sub>x</sub> per consecutive 12-months period) as per Section 2.2.A.1. of the current permit. No change in emissions are expected for any regulated NSR pollutant due to establishment of revised, maximum metals concentration limits for the sewage sludge fed to the existing SSI. This application does not change the above facility classification under the PSD program. No further review is required under PSD.

### 112(r)

Not Applicable. The Permittee does not store on-site any regulated compound in quantities exceeding the threshold levels, as per Form A3, included in the application.

## CAM

Not applicable. The proposed changes in Section 5 above do not require DAQ to address CAM applicability for the existing “active” control devices at this time.

## **7. Facility-wide Air Toxics**

The proposed changes in Section 5 above do not trigger any review under the state air toxics program (02Q .0711 and 02D .1100). In addition, air toxics emissions from the existing SSI and emergency/peak shaving generators are exempt from review per 02Q .0702(a)(27) as they are Part 61 or 63 subject sources.

The following includes a discussion on the existence of any unacceptable risk to human health for the air toxic emissions from the above NESHAP-subject sources, copied from the application review supporting the air quality permit 08074T12 (February 23, 2018), which in turn cites the application review supporting the air quality permit 08074R09 (March 31, 2015) for this issue:

“Consistent with 02Q .0702(a)(27)(A) and (B), air toxics emissions from sources subject to Part 61 and 63 NESHAPs are exempt from the state air toxic program requirements (both 2Q .0711 and 2D .1100). Thus, the existing requirements for both 2D .1100 and 2Q .0711 will be excluded in the revised permit for all of the above pollutants and sources, as discussed above.”

“Moreover, due to the changes in emission control devices (i.e., changes in stack parameters) for existing sewage sludge incinerator, as discussed above, the Permittee has submitted a revised modeling demonstration for pollutants exceeding the applicable TPERs. Specifically, for emissions of arsenic, non-specific chromium (vi) compounds, di(2-ethylhexyl)phthalate, sulfuric acid, and mercury vapor, the Permittee has demonstrated compliance with 2D .1104. As per the memorandum prepared by AQAB, dated 3/11/2015, the highest predicted impact from the incinerator only emissions is for mercury vapor (0.353 lb/day, 24-hour averaging basis), at approximately 22 percent of the associated AAL. With additional emissions of mercury vapor (0.0015 lb/day) from the other sources (three 2,000 kW generators), no significant change to the above predicted impact is expected.”

“In summary, because this incinerator is subject to Part 61 NESHAP, it is exempt from air toxics permitting in accordance with 2Q .0702(a)(27)(A). Hence, the emissions rates included in the revised modeling analysis can also not be included in the permit. Additionally, neither the removal of existing emissions limits nor the exclusion of emissions limits in the revised permit based on revised modeling demonstration is expected to present an unacceptable risk to human health due to low impacts, as discussed above.”

## **8. Facility-wide Emissions**

The following is a facility-wide emissions summary. The actual emissions are for calendar year 2019, as reported by City of High Point - Eastside WWTP to DAQ via submittal of its emission inventory. The potential emissions (with control) are copied from the application.

Pollutant	Actual Emissions tons/yr	Potential Emissions (with control) tons/yr
PM	0.3	7.09
PM-10	0.12	6.29
PM-2.5	0.12	6.28
SO <sub>2</sub>	Not Reported	0.69

Pollutant	Actual Emissions tons/yr	Potential Emissions (with control) tons/yr
NOx	6.03	< 250
CO	1.1	53.6
VOC	0.2	5.95
Lead	0.00001	0.0000525
GHG as CO <sub>2</sub> e	309.5	38335
Single HAP	Negligible	3.15 (1,4 dichlorobenzene)
Aggregate HAP	Negligible	4.22

## 9. Public Notice/EPA and Affected State(s) Review

With respect to Title V procedures for public participation, pursuant to 15A NCAC 02Q .0521, a notice of the DRAFT Title V Permit will be placed on NCDEQ website on xx. The notice will provide for a 30-day comment period with an opportunity for a public hearing. Copies of the public notice will be sent to persons on the Title V mailing list and EPA on xx. Pursuant to 15A NCAC 02Q .0522, a copy of the permit application and the proposed permit (in this case, the draft permit) will be provided to EPA for their 45-day review on xx. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit will be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above. A copy of the final permit will also be provided to the EPA upon issuance as per 02Q .0522.

## 10. Stipulation Review

The following Table 10-1 lists the changes to the City of High Point Eastside Wastewater Treatment Plant's Air Quality Permit No. 08074T13:

**Table 10-1 Summary of Changes to Current Permit**

Old Page Air Quality Permit No. 08074T13	Old Section Air Quality Permit No. 08074T13	New Page Air Quality Permit No. 08074T14	New Section Air Quality Permit No. 08074T14	Description of Change(s)
Cover letter & first page of permit				Amended permit numbers and dates.
3	Section 1 Table	3	Section 1 Table	For wet scrubber descriptor, Revise the minimum liquid injection rate using the approved 2018 stack test results from 392 gal/min to 275 gal/min. Include the minimum pressure drop of 39.1 inches of water using the approved 2018 stack test results.
3	Section 2.1.A. Table	3	Section 2.1.A. Table	Remove non-applicable requirement in Part 62 Subpart LLL.  Instead of listing the applicable standards in 02D .1204, state "See Section 2.1.A.4.a. and b."  Instead of "250 tons per year" for PSD avoidance limit, state "less than 250 tons per consecutive 12-months period".
4	Section 2.1.A.2.b. Table	4	Section 2.1.A.2.b. Table	Replace "less than 20 percent opacity" with "20 percent opacity".

Old Page Air Quality Permit No. 08074T13	Old Section Air Quality Permit No. 08074T13	New Page Air Quality Permit No. 08074T14	New Section Air Quality Permit No. 08074T14	Description of Change(s)
4, 5	Section 2.1.A.2.c.i. and ii.	4	Section 2.1.A.2.c.i. and ii.	For wet scrubber, include non-compliance statement for both inspection and maintenance requirements, and record keeping requirement.
5	Section 2.1.A.2.d.i. through iii.	5	Section 2.1.A.2.d.i. through iii.	For sorbent polymer adsorber, include non-compliance statement for inspection and maintenance requirements, monitoring requirements, and record keeping requirement.
5	Section 2.1.A.2.d.ii.	5	Section 2.1.A.2.d.ii.	Replace the pressure drop range of 0.35 to 3.5 inches of water to a minimum pressure drop of 0.16 inch of water for sorbent polymer adsorber, based on approved 2018 stack test report.
5	Section 2.1.A.2.f.i. and ii.	5	Section 2.1.A.2.f.i. and ii.	<p>The 2018 stack test exhibited the average pressure drop across the wet scrubber to be 39.1 inches of water. Per §60.155(a)(1)(i), using the 30 percent cutoff and the above average pressure drop observed in 2018 test, the reporting is required when the pressure drop falls below 27.4 inches of water (i.e., <math>39.1 - 0.3 \times (39.1)</math>). Thus, the current value of 24.5 inches will be revised to 27.4 inches of water.</p> <p>The 2018 stack test event showed the average O<sub>2</sub> concentration in incinerator exhaust to be 8.35 percent. Using §60.155(a)(2), the reporting is required for any 1-hour average exhaust O<sub>2</sub> concentration when it exceeds 3 percent above 8.35 percent (that is, 11.35 percent). Thus, the current value of 10.9% will be revised to 11.35%.</p>
-	-	5	Section 2.1.A.2.f.iii.	Include this new requirement for possible permit revision(s) for the listed pressure drop limit and exhaust O <sub>2</sub> concentration.
-	-	6	Section A.3.b. and c.	Include monitoring/recordkeeping/reporting requirements for NESHAP for beryllium and mercury.
6, 7	Section 2.1.A.4.	6 through 9	Section 2.1.A.4.	Completely rewrite this condition based on the current requirements in 02D .1204.
7, 8	Section 2.1.A.5.	9 through 11	Section 2.1.A.5.	<p>Include revised concentration limits for Pb, Ar, Cd, Cr, and Ni based on the approved 2018 stack test results, and calculated controlled efficiencies and a new dispersion factor (derived from a new modeling).</p> <p>Include non-compliance statements for management practices, CEMS and record keeping requirements.</p> <p>Include a statement on deviation reporting under the reporting section.</p>
9 through 12	Section 2.1.A.6.	-	-	Remove non-applicable requirement in Part 62 Subpart LLL.
13	Section 2.1.C. Table	12	Section 2.1.C. Table	Instead of “250 tons per year” for PSD avoidance limit, state “Less than 250 tons per consecutive 12-months period”.

Old Page Air Quality Permit No. 08074T13	Old Section Air Quality Permit No. 08074T13	New Page Air Quality Permit No. 08074T14	New Section Air Quality Permit No. 08074T14	Description of Change(s)
14 through 18	Section 2.1.C.3.	13 through 17	Section 2.1.C.3.	Instead of “condition” state “Section”.
18	Section 2.1.C.3.ee.	17	Section 2.1.C.3.ee.	Remove non-compliance statement for reporting. As long as compliance is defined for monitoring including record keeping requirements, no separate compliance is to be defined for the reporting requirement involving the same monitoring / recordkeeping.
18	Section 2.2.A.1.	17	Section 2.2.A.1.	Revise this condition to state that emissions of incinerator (ES-01) are also part of the PSD avoidance stipulation for NO <sub>x</sub> .
18	Section 2.2.A.3.	18	Section 2.2.A.3.	Correct the monitoring/recordkeeping from fuel usage to hours of operation for each generator. Include a non-compliance statement.
18	Section 2.2.A.5.	18	Section 2.2.A.5.	Include a statement on deviations reporting.
19 through 29	Section 3	19 through 29	Section 3	Include the most current GENERAL CONDITIONS (version 5.4, 07/20/2020).

## 11. Conclusions, Comments, and Recommendations

- A professional engineer (PE)’s seal is not required.

The application does not include a request for a new emission source or modification to an existing source, involving review of design, or determination of applicability or appropriateness with regard to regulatory requirement, or interpretation of performance of an air pollution capture and control system. Thus, the PE seal requirement in 02Q .0112 “Applications Requiring Professional Engineer Seal” is not triggered.

However, the application involves establishing revised metals limits (to comply with both 40 CFR 503 Subpart E and 02D .1204) for sewage fed to the SSI and a new dispersion factor via a new modeling analysis. Thus, Mr. Keith D. McCulloch, P.E. License No. 027343 has elected to seal the Summary and Appendix I (503 Metals Limits) of the application on January 16, 2019. A search of the registrant directory on the N.C. Board of Examiners for Engineers and Surveyors website confirmed that Mr. McCulloch’s license to practice engineering in the State of NC was in the “current” (active) status.

- The DAQ has determined that the changes processed in this application do not constitute an expansion of the existing facility. Thus, the requirement for a determination of a local zoning is not triggered.
- The draft permit was emailed to the Permittee for review and comment on July 6, 2020. City of High Point through its consultant (Keith McCulloch of GEL Engineering of NC) submitted on July 9<sup>th</sup> a few comments on the draft permit and the application. Almost all comments are on correcting the citations for different regulatory requirements of emission guideline (40 CFR 60 Subpart MMMM) except the one as below.

With respect to Section 2.1.A.4.e, the Permittee has stated that it is not possible to submit a permit application to revise the operating limits included in the permit for the sewage sludge incinerator, control devices, or the ash handling monitoring system, at the same time the stack test report is due under General Condition JJ.

The DAQ agrees with the Permittee on lack of adequate time to submit such permit application; thus, it will revise the deadline to submit an application within 60-days of conducting a test, establishing the revised operating limit. For comparison, the test report is due within 30-days of source sampling.

Finally, corrections to the regulatory citations as commented will be performed in the permit. No discussion is needed for this issue.

- The draft permit was emailed to the WSRO for review and comment on July 6, 2020. No comments were received from the regional office.
- This permit engineer recommends issuing the final permit after completion of public notice (30-day) and EPA review (45-day) periods.